

REMARKS/ARGUMENTS

Claim 1 has been amended to require the content of the monofunctional acrylate in the polymerizable material to be 5 % by weight or less. Support for this amendment exists, *inter alia*, at page 4, lines 1-12.

Claims 1 and 19 have been amended to require the edge to be a light incidence plane. Support for this amendment exists throughout the present specification, including page 1, lines 16-20.

Claims 1, 3-7, 9-14 and 16-19 are currently pending.

The Office Action rejected claim 19 under 35 U.S.C. § 112, second paragraph, as being indefinite. In view of the above claim amendments, Applicants respectfully submit that this rejection has been rendered moot, and that this rejection should be reconsidered and withdrawn.

The Office Action also rejected claims 1, 3-7, 9-14 and 16-19 under 35 U.S.C. § 103 as obvious over (1) JP 2002-256128 (“Masuda”) in view of U.S. patent 5,726,268 (“Sakamoto”); and (2) PCT patent application publication no. WO 02/39153 (U.S. patent 6,941,056) (“Hirota”) in view of JP 60-258219 (“Hasegawa”). In view of the following comments, Applicants respectfully request reconsideration and withdrawal of these rejections.

The claimed invention relates to a sheet for light guiding plates, where the resin comprises 0.01 ppm to 1000 ppm of a particulate diffusing agent and a polymer obtained by polymerizing a mixture comprising a polymerizable material consisting of methyl methacrylate and a monofunctional acrylate, and ethyleneglycol dimethacrylate, wherein the content of the monofunctional acrylate in the polymerizable material is 5 % by weight or less and the content of the ethyleneglycol dimethacrylate in the mixture is 0.15 to 2 parts per 100

parts by weight of the polymerizable material. The applied art neither teaches nor suggests this invention.

Masuda (at par. [0013]) neither teaches nor suggest combining a monofunctional acrylate together with a polyfunctional (meth)acrylate, let alone combining a monofunctional acrylate with ethyleneglycol dimethacrylate. That Masuda would not lead one skilled in the art to the required combination is evidenced by the fact that Masuda's examples do not employ any polyfunctional (meth)acrylate, let alone ethyleneglycol dimethacrylate.

Masuda's only reference to polyfunctional compounds teaches that monofunctional and polyfunctional monomers are equivalent, listing all of these compounds together in the same sentence. Nothing in Masuda would lead one skilled in the art to believe that any difference existed in such mono- and poly-functional compounds, or to combine a polyfunctional methacrylate with a monofunctional monomer.

Furthermore, not only does Masuda fail to disclose the required constituents of the claimed polymerizable material, Masuda also fails to disclose specific concentration ranges for these individual constituents. Nowhere does Masuda teach or suggest that the content of the monofunctional acrylate in the polymerizable material should be 5 % by weight or less and the content of the ethyleneglycol dimethacrylate should be within the very narrow range of 0.15 to 2 parts per 100 parts by weight of the polymerizable material.

In this regard, Applicants respectfully submit that the calculations at pages 12-13, par. 14 of the Office Action are incorrect. Masuda discloses 4 parts of methacrylate, not 4 parts of ethylene glycol dimethacrylate. Rather, Masuda discloses the presence of 0.03 parts EGDMA. Furthermore, the phrase "polymerizable material" is interpreted incorrectly with respect to the present invention. In the present invention, the polymerizable material includes methyl methacrylate and monofunctional acrylate. Using this interpretation, the total amount of polymerizable material in Masuda's example 1 is 100 parts by weight (96 methyl

methacrylate, 4 methacrylate). The 0.03 parts per 100 of EGDMA in example 1 is clearly outside the claimed range in the pending claims.

The significance of Masuda's failure to teach or suggest the claimed polymer is that Masuda cannot teach or suggest, expressly or inherently, the benefits associated with the present invention including improved processability (for example, cutting and polishing). The examples in the present application demonstrate the significance of the requirements set forth in the pending claims, and the benefits associated with such requirements, which are neither taught nor suggested by Masuda.

For example, comparative example 3 contains 10% monofunctional acrylate and, thus, falls outside the pending claims. As indicated in Table 1 (at page 12), this comparative example suffered significant scorching during cutting. In contrast, examples 1-6 in Table 1 of the present application demonstrate that having less than 5% monofunctional acrylate yields compositions having improved scorching properties. These examples demonstrate the significance of limiting the content of the monofunctional acrylate in the polymerizable material. Masuda neither teaches nor suggests this important element of the claimed invention.

Also, comparative example 1 contains no ethyleneglycol dimethacrylate. As indicated in Table 1 (at page 12), this comparative example also suffered significant scorching during cutting. This example demonstrates the significance of the limitation that "the content of the ethyleneglycol dimethacrylate in the mixture is 0.15 to 2 parts per 100 parts by weight of the polymerizable material." Again, Masuda neither teaches nor suggests this important element of the claimed invention.

Finally, Masuda discloses forming materials using injection or extrusion molding (see par. [0020]) instead of forming the polymers through polymerization in a mold (as per the

claimed methods). Masuda's methods cannot provide the improved processability which the presently claimed methods provide.

Clearly, Masuda neither teaches nor suggests the specific polymer components in the specific concentrations of the claimed invention, nor any of the benefits associated with the claimed invention, particularly the improved processability (e.g., cutting, polishing) of these materials. Nor does Masuda provide any motivation to modify his disclosure in such a way to focus on the claimed invention, using the required materials in the required amounts.

Sakamoto cannot compensate for Masuda's fatal deficiencies. Sakamoto neither teaches nor suggests that ethyleneglycol dimethacrylate must be present -- nowhere does Masuda require the presence of EGDMA. As demonstrated in comparative example 1 of the present invention (Table 1), this lack of disclosure is significant.

Also, Sakamoto neither teaches nor suggests that monofunctional acrylate must be present in an amount less than or equal to 5%. As demonstrated in examples 1-6 of the present invention (Table 1), this lack of disclosure is significant.

Finally, Sakamoto neither teaches nor suggests that ethyleneglycol dimethacrylate must be present in an amount of 0.15-2% in the claimed compositions. Sakamoto relates to extrusion or injection molding. In such moldings, the employed resins must have a high melt flow property. However, as the content of polyfunctional (meth)acrylates increases, the melt flow properties of the resins deteriorate (due to crosslinking). Thus, the content of such materials in injection/extrusion molding is much less than those in sheets for light guiding plates (see, e.g., Sakamoto's examples which contain 0.030-0.079 parts by weight of ethylene glycol dimethacrylate (EGDMA)(see Table 1)). In other words, disclosure concerning resins in injection/extrusion moldings teach or suggest nothing about resins in sheets for light guiding plates.

In this regard, Applicants respectfully submit that injection molding and extrusion molding are not the same as the polymerization required by the present invention, as argued in the Office Action (page 12, par. 12). The difference between such molding processes and the present invention explained in the above paragraph. No evidence (as opposed to mere argument) has been presented to rebut this difference.

In sum, the combination of Masuda and Sakamoto cannot lead to the claimed invention which requires specific materials in specific concentrations.

At any rate, the examples in the present application demonstrate significant advantages of the claimed invention over comparable, Masuda-esque or Sakamoto-esque compositions. Such benefits could not have been expected from Masuda's or Sakamoto's disclosures. These benefits, by themselves, demonstrate the novelty and non-obviousness of the claimed invention.

In view of the above, Applicants respectfully request reconsideration and withdrawal of the rejection under 35 U.S.C. § 103 based upon Masuda and Sakamoto.

Regarding the § 103 rejection based upon Hirota and Hasegawa, this combination of references does not yield the claimed invention either.

For example, as recognized by the Office Action, Hirota does not disclose the required polyfunctional (meth)acrylate.

Hasegawa does not compensate for Hirota's deficiencies. Hasegawa neither teaches nor suggests ethylene glycol di(meth)acrylate as required by the claims. Rather, Hasegawa discloses polyethylene di(meth)acrylate (MW of the polyethylene glycol part is 170-1020). In contrast, EGDMA has a MW of 60. Thus, Hasegawa neither teaches nor suggests the required ethyleneglycol dimethacrylate.

What's more, Hasegawa actually teaches away from EGDMA. Hasegawa discloses that substrates made of polyethylene di(meth)acrylate having a MW lower than 170 are

fragile and have inferior mechanical strength. Thus, one skilled in the art, following Hasegawa, would not have been led to a low MW compound such as EGDMA. Rather, the express teaching and guidance provided by Hasegawa would have led directly away from such a compound to much higher MW compounds.

At any rate, as discussed above, the examples in the present application demonstrate significant advantages of the claimed invention over comparable compositions. Such benefits could not have been expected from Hirota's or Hasegawa's disclosures. These benefits, by themselves, demonstrate the novelty and non-obviousness of the claimed invention.

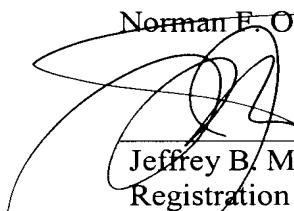
In view of the above, Applicants respectfully request reconsideration and withdrawal of the rejection under 35 U.S.C. § 103 based upon Hirota and Hasegawa.

Applicants believe that the present application is in condition for allowance. Prompt and favorable consideration is earnestly solicited.

Respectfully submitted,

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